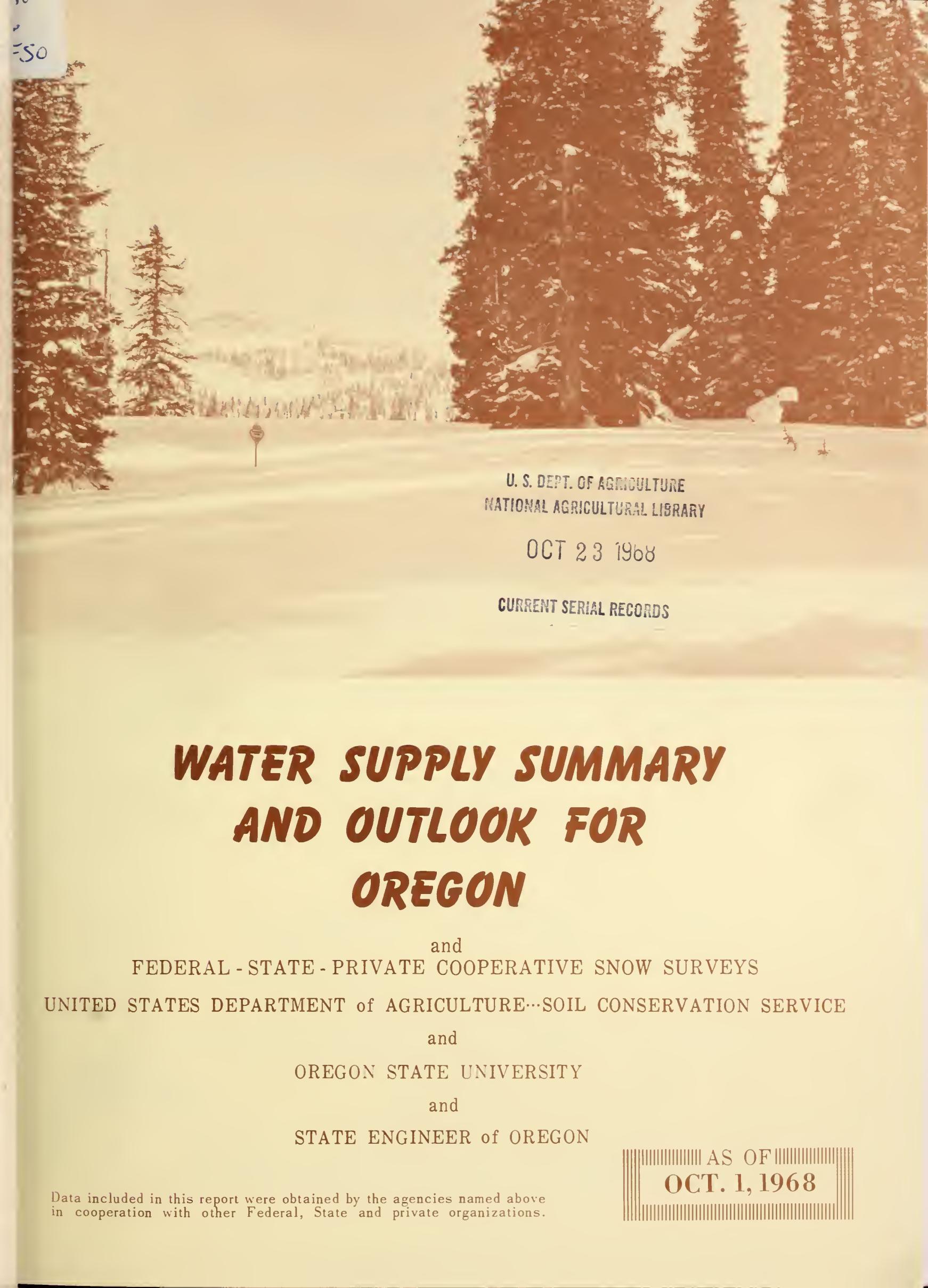


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OCT 23 1968

CURRENT SERIAL RECORDS

# **WATER SUPPLY SUMMARY AND OUTLOOK FOR OREGON**

and

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

UNITED STATES DEPARTMENT of AGRICULTURE - SOIL CONSERVATION SERVICE

and

OREGON STATE UNIVERSITY

and

STATE ENGINEER of OREGON

Data included in this report were obtained by the agencies named above  
in cooperation with other Federal, State and private organizations.

AS OF  
OCT. 1, 1968

## TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season as they affect runoff will add to be an effective average. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1400 snow courses in Western United States and in the Columbia Basin in British Columbia. In the near future, it is anticipated that automatic snow water equivalent sensing devices along with radio telemetry will provide a continuous record of snow water equivalent at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data on reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

### PUBLISHED BY SOIL CONSERVATION SERVICE

D. A. WILLIAMS, Administrator

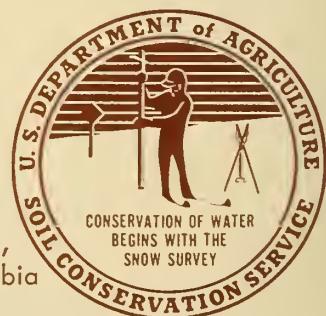
The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, Western Regional Technical Service Center, Room 507, 701 N. W. Glisan, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	P. O. Box "F", Palmer, Alaska 99645
Arizona	6029 Federal Building, Phoenix, Arizona 85205
Colorado (N. Mex.)	12417 Federal Building, Denver, Colorado 80202
Idaho	P. O. Box 38, Boise, Idaho 83707
Montana	P. O. Box 98, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1218 S. W. Washington St., Portland, Oregon 97205
Utah	4012 Federal Building, Salt Lake City, Utah 84111
Washington	360 Federal Office Building, Spokane, Washington 99201
Wyoming	P. O. Box 340, Casper, Wyoming 82602

### PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P. O. Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia



# **WATER SUPPLY SUMMARY AND OUTLOOK FOR OREGON**

and  
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

*Issued*

OCTOBER 8, 1968

*Issued by*

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# WATER SUPPLY SUMMARY AND OUTLOOK for OREGON

October 1, 1968

As forecasted, Oregon's 1968 water supplies have been severely short in most areas. The outlook for water in 1969 is drastically poor unless the coming winter brings a superabundance of deep mountain snowpacks with water content greatly in excess of usual amounts.

Snowpacks were only slightly below normal on January first this year, but later winter storms were scarce and failed to increase the all-important snow blanket which normally provides Oregon's streamflow in the summer months.

Excessive precipitation in August and early September caused only slight increases in streamflow but severely damaged crops in parts of Willamette Valley. It also lengthened the irrigation season by two to three weeks in many districts in eastern Oregon.

Records show that flows of Oregon streams have never completely recovered from the long, hot drought of 1967. Provisional flow data, provided by the U. S. Geological Survey and other agencies, on a dozen Oregon streams for the May-September period indicate the Deschutes River at Moody produced only 66 percent of the average for the "highest" flow. The Malheur at Drewsey flowed 6 percent of the 1948-62 average and McKay Creek in Umatilla County flowed only 7 percent average for the "lowest" flows. The Burnt River, John Day and Grande Ronde flowed from 22 to 30 percent average and the Owyhee, Klamath, Middle Fork Willamette, Rogue and Umpqua Rivers ranged from 40 to 47 percent of the average. All of these flows were close to the lowest flows of record.

More than one million acres of irrigated land, dependent upon natural streamflow, had a very poor year. Most streams peaked several weeks earlier than usual. A few streams produced no water at all.

Irrigation reservoirs had a substantial carryover of water from the 1967 season. Inflows received before April first were much below average except in the February snowmelt period, but the irrigation season began with a total stored water supply about 98 percent of the average. Inflow in April and May was extremely short and as a result only partial water supplies were provided for the nearly 500,000 acres which these reservoirs serve. Water for the Owyhee Project was supplemented by pumping from the Snake River, thus providing a satisfactory water supply with a small carryover. Wallowa Lake provided a satisfactory supply.

Stored water in 24 Oregon irrigation reservoirs on October first totals only 737,500 acre feet compared with the 1948-62 average of 1,179,700 acre feet, or 62 percent of the average.

Details of the water supply in different Oregon regions are as follows:

### Owyhee-Malheur Watersheds

Irrigation water supplies in Malheur County were greatly deficient this year except for those areas that had stored water available. Carryover supplies for next year in storage reservoirs is only 34 percent of average, leaving a large deficit to be made up this winter. The Owyhee Irrigation District, with supplemental water from the Snake River, had an average supply. Other irrigation districts and those irrigating from natural streamflow had only fair to very poor supplies.

Last winter's scarce snowpack produced extremely early peak flows with some streams not peaking at all. August rains extended the irrigation season in some areas two to three weeks. Lack of precipitation in September has caused much drying out again and conditions are now the same as before the rains.

Reservoirs will start out the 1969 water year in poor shape as a result of the necessarily heavy use of stored water during the summer. Warmsprings and Agency Valley normally containing about 40,000 acre feet in storage are now dry. Bully Creek is storing 4,800 acre feet compared to 10,400 last year. Owyhee Reservoir contained 136,000 acre feet of water on October 1 compared to 334,200 acre feet last year on the same date. The average contents of Owyhee on October 1 are 270,400 acre feet. Antelope holds 1,800 acre feet compared with 9,800 acre feet a year ago. The Malheur Reservoir on Willow Creek will have a small carryover.

With reservoir storage and streamflow currently very poor, an extra heavy snowpack will be required this winter to insure an average supply of water for next summer.

### Burnt-Powder-Pine-Grande Ronde Watersheds

Irrigation water supplies were satisfactory in northeastern Oregon this summer only in Wallowa County where snowpacks were near average. Baker and Union Counties experienced very poor water supplies except where stored water was adequate.

Stored water supplies in major irrigation reservoirs in this three-county area are now extremely meager except in Wallowa Lake where 16,900 acre feet are now held compared with 14,500 a.f. a year ago. Phillips Lake, created by Mason Dam on Powder River, held 1,900 a.f. on October first. Unity Reservoir contained 1,700 acre feet compared with 3,200 a.f. one year ago. Carryover water is very short this fall.

Excessive rainfall in August and early September caused slight but important increases in streamflow. Most important, however, these rains permitted a two to three-week shutdown of withdrawals of stored water supplies and, thereby, increased the length of the irrigation season for most irrigation districts.

Streamflows from May 1 to September 30, 1968 in northeastern Oregon were forecast to fall near the record-low levels measured in the early "thirties." The following table illustrates the accuracy of two of the forecasts:

Stream	Average Flow (1948-62)	Forecast 1968	Observed Flow Provisional*
Burnt R. near Hereford	17,800 a.f.	4,000 a.f.	3,892 a.f.
Grande Ronde at La Grande	121,000 a.f.	32,000 a.f.	32,300 a.f.

\*Preliminary information from U.S. Geological Survey, Portland, Oregon

1969 will bring only meager water supplies to this corner of the state unless mountain snowpacks accumulate much above average water content this coming winter season.

#### Walla Walla-Umatilla-Willow and Rock Creek Watersheds

1968 irrigation water supplies in Umatilla, Morrow and Gilliam Counties were the poorest since the "thirties" until the unusually good August rains temporarily improved the situation. Most stored water supplies were exhausted by mid-August even though "rotation" and "on-and-off" distribution plans were employed. Many water users improved their water application efficiency this season and quite a few applied all their water only to the better producing lands.

Preliminary data from the U. S. Geological Survey indicates the observed flow of the Umatilla River at Pendleton for the May through September period was 28,700 acre feet. The forecasted flow was 29,000 acre feet or 30 percent of the 1948-62 average flow which is 97,000 acre feet.

Precipitation at Pendleton from September 1, 1967 to August 1, 1968 was reported as 57 percent average by the U. S. Weather Bureau. August rains increased this percentage only slightly to 61 percent average.

A winter of unusually heavy snow accumulation will be needed if the 1969 water supplies are to be satisfactory in this region.

#### Upper John Day Watersheds

Irrigation water supplies this summer were generally below what was needed in the John Day Basin because of extremely low streamflow. Exceptions were on the lower main stem of the John Day below Kimberly and the main stems of the Middle and North Forks of the John Day River.

The April-September flow of the John Day River at Service Creek was 229,000 acre feet or 24 percent of average, according to provisional data furnished by the U. S. Geological Survey. Only in 1934, with 161,000 acre feet, was the streamflow lower for the April-September period.

Unusual August rains brought small increases in streamflows but most streams have now receded to the levels they were at before the rains. However, these rains did extend the irrigation season several weeks.

Short supplies are the prospect for 1969 unless heavy snowpacks accumulate in the mountain this winter.

#### Upper Deschutes and Crooked River Watersheds

Most irrigators in the Deschutes and Crooked River watersheds had short water supplies this summer. Those in organized irrigation districts had 70 to 80 percent supplies except the Swalley and Central Oregon Irrigation Districts where average supplies were available. Carryover supplies in reservoirs at present are extremely low and unless a superabundance of snow accumulates in the mountains serious shortages will occur in 1969.

Currently storage in Ochoco and Prineville Reservoirs totals 72,100 acre feet compared to 120,000 on October 1, 1967. The Deschutes reservoirs, Crescent Lake, Crane Prairie and Wickiup, contain 26,900 acre feet compared to 56,100 acre feet last year at this time and an average of 104,800 acre feet. This serious deficit in storage will have to be made up from streamflow to insure a good supply next year.

The April-September flow of the Deschutes at Moody was only 63 percent of average as reported by the U.S. Geological Survey. Flow of springs in headwaters of the Deschutes are even lower than they were a year ago. This indicates that streams have never recovered from the hot drought of 1967.

The water supply outlook for 1969 is dismal unless a heavy, water-saturated snowpack accumulates in the mountains this winter.

#### Hood River-White River-Mile Creeks-Lower Deschutes Watersheds

1968 irrigation water supplies in the Hood River-Wasco County area have been mostly only fair and peak flows of streams came much earlier than usual reducing the early water supplies.

Both the snowpack and the total precipitation were short of the amounts needed for average water supplies but late August precipitation built up streamflows in the lower elevations where irrigation occurs.

The August precipitation was about 8 times the usual amount and has definitely improved the soil moisture conditions.

Above average amounts of snowfall will be required if next summer's streamflow is to provide satisfactory water supplies.

### Willamette Watersheds

Streamflow in the Willamette Valley this summer has been much below average in spite of the heavy August rains that brought so much crop damage to farmers in the area.

The April-September flow of the Middle Fork of the Willamette below the North Fork was 424,300 acre feet or 44 percent of average according to the U. S. Geological Survey's provisional records. Not since the "thirties" have flows this low been experienced.

The usual water for irrigation will be available next year from the Willamette Valley reservoirs but, unless a heavy snowpack accumulates in the mountains this winter, natural streamflow will be much below normal again.

### Rogue-Umpqua Watersheds

Irrigation water was in short supply this summer in Douglas, Jackson and Josephine Counties except for the Talent and Medford Irrigation Districts where stored water was available and adequate. Proper utilization and good water management, which stretched supplies for irrigators this summer, will have to be practised next year also. Carryover water is less than average and a good heavy snowpack will be required this winter to make up the deficit.

Total storage in Howard Prairie, Hyatt Lake and Emigrant is now 37,300 acre feet compared to an average of 48,500 acre feet. Fish Lake and Fourmile reservoirs contain a total of 2,400 acre feet compared to the 1948-62 average of 8,500 acre feet.

Even with the heavy August rains the Grants Pass Irrigation District was on rotation all summer except for one week. U. S. Geological Survey provisional records show the May-September flow of the Rogue at Raygold was 345,200 acre feet or 47% of average. This compares to the forecasted flow of 370,000 acre feet of 51 percent of average.

Flow of the Umpqua at Elkton for the May-September period was 463,600 acre feet or 47 percent of average.

A good heavy snowpack is needed during the coming months to insure adequate supplies of water for everyone in the Rogue and Umpqua Basins next summer.

### Klamath Basin Watersheds

Water supplies in Klamath Basin in the 1968 season were adequate except when supplies were dependent on natural streamflow, which was very poor this year. Carryover water in the three largest reservoirs is 198,000 acre feet less than the 549,000 acre feet on hand a year ago--the current storage is 26 percent under the average figure for October first.

Last winter's snowpack was nearly record-low and was supplemented by below average precipitation--the abundant August precipitation was the only positive factor in the past irrigation season.

Inflow to Upper Klamath Lake in the May through September period this year was 191,000 acre feet or 44 percent of the average for this period. The forecast for this period was 54 percent of average with a flow of 235,000 acre feet. This year's flow is the lowest since 1934 when 142,500 acre feet of inflow were measured.

Prospects are poor for satisfactory 1969 irrigation water supplies in the Klamath area unless a superabundance of snow accumulates in the coming winter season in the mountains.

### Lake County Watersheds

1968 irrigation water supplies in Lake County have been seriously short for all acres except those of the Lakeview Water Users Association which made withdrawals of water from Drews Valley Reservoir to provide a satisfactory season. Carryover water in Drews Reservoir is only 11,500 acre feet--just half of the usual amount.

Shortage of precipitation, coupled with an extremely poor snowpack, caused the poor season this year. Heavy August precipitation brought much needed relief but did not have much effect on streamflow. Underlying the matter of water shortage is the fact that most Oregon streams have not yet recovered from the affects of the hot drought of 1967.

Hay crops are about one-third less than average this year and pastures have been very poor. There is some carryover of hay from last year.

The outlook for 1969 water supplies in Lake County is very discouraging unless the coming winter storms bring a superabundance of snow in the mountains with much above average water content.

## Harney Basin Watersheds

Irrigation water supplies in the Harney Basin were seriously short this past summer. August rains brought some temporary relief for irrigators but top soils are drying out again and a superabundance of snow is needed next winter in the mountains to insure average supplies in 1969.

A shortage of stock water has made many range areas unusable. Forage production was much below average and as a result livestock gains were less than usual.

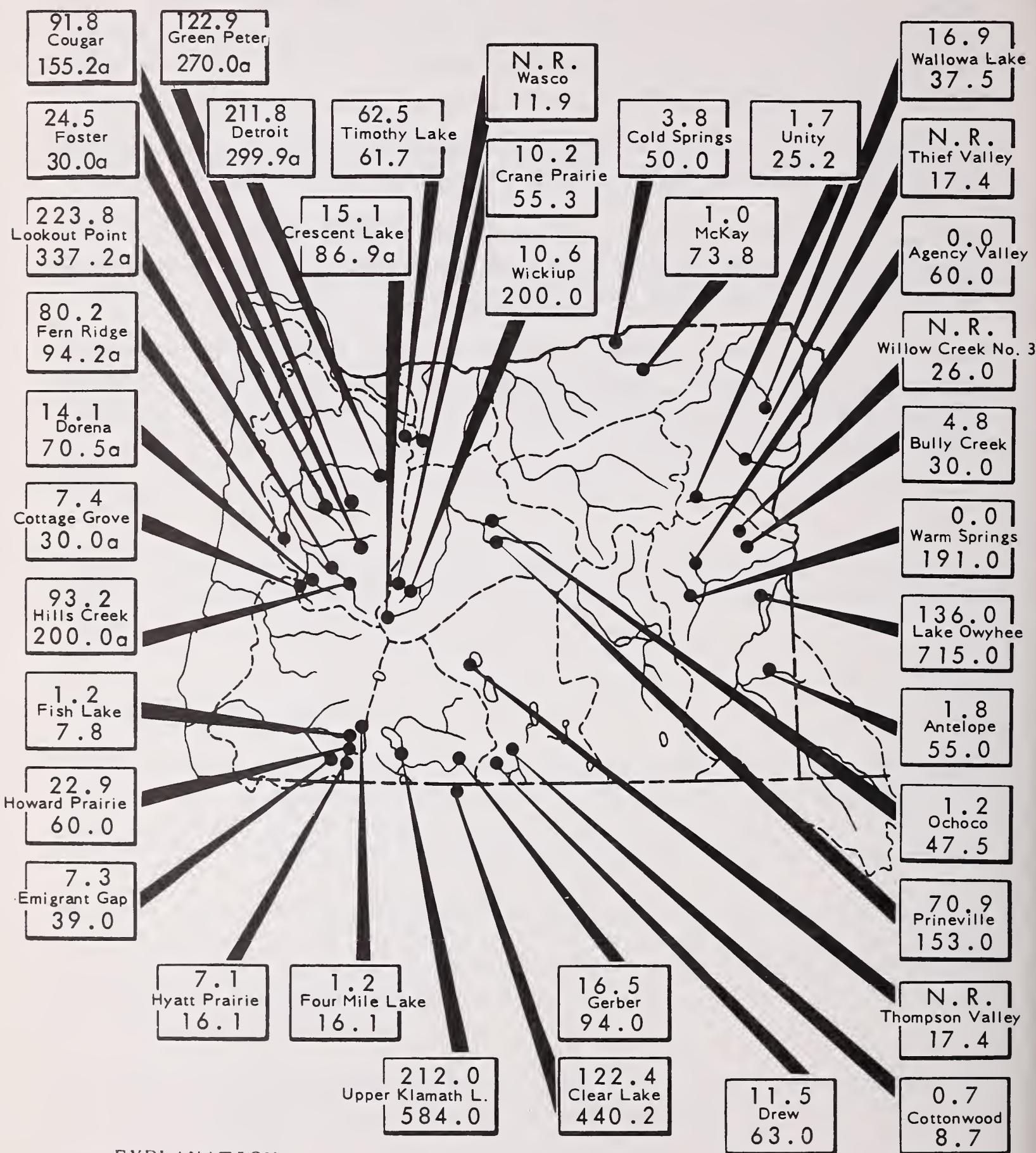
Some new wells are being drilled and springs and seeps developed for stock water supplies. Ground water supplies in an observation well about four miles south of Burns have been at record-low stages since May.

Flow of the Silvies River has been extremely poor with no water reaching Malheur Lake in the summer season. Lands along the lower reaches of the river received little or no water. Flow of Harney Basin streams was probably the lowest since the great drought year of 1934.

# STORAGE STATUS of OREGON RESERVOIRS

## usable contents in thousands of acre feet

October 1, 1968



### EXPLANATION

687.0 ---Contents  
Lake Owyhee  
715.0 ---Capacity

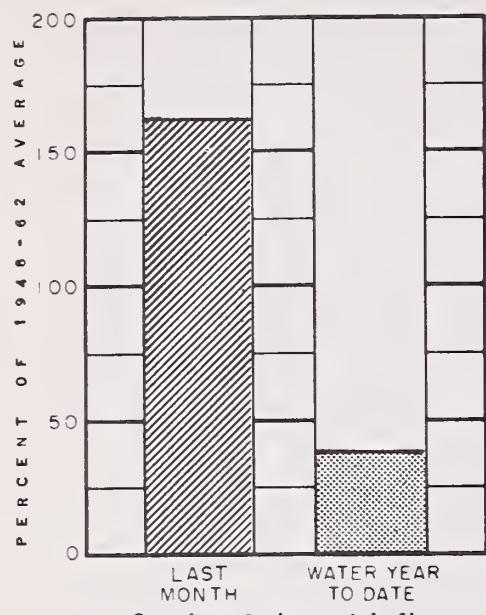
(a) Multiple purpose reservoir - space reserved for flood runoff.  
N. R. - No report.

## STATUS OF RESERVOIR STORAGE, OCTOBER 1, 1968

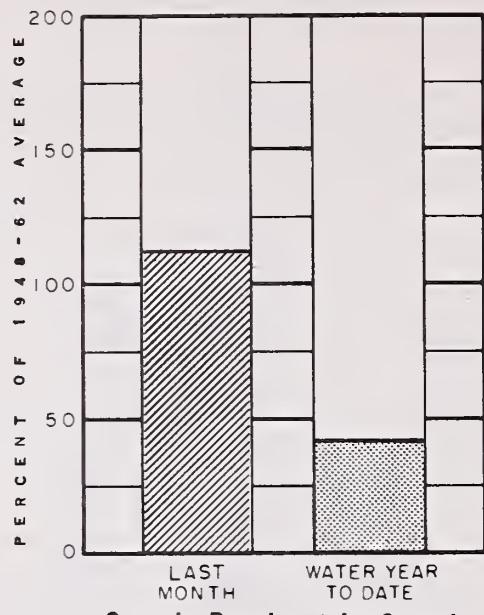
RESERVOIR	USABLE CAPACITY (Thous. A.F.)	THOUSANDS ACRE FEET IN STORAGE ABOUT OCT. 1		
		1968	1967	15-year Average 1948-62
<u>UPPER COLUMBIA DRAINAGE</u>				
Antelope	55.0	1.8	9.8	—
Owyhee	715.0	136.0	332.7	270.4
Agency Valley	60.0	0.0	7.9	7.8
Bully Creek	30.0	4.8	10.4	—
Warmsprings	191.0	0.0	62.4	33.9
Unity	25.2	1.7	3.2	2.9
Wallowa Lake	37.5	16.9	14.5	13.6
<u>LOWER COLUMBIA DRAINAGE</u>				
Cold Springs	50.0	3.8	0.0	3.0
McKay	73.8	1.0	7.1	8.7
Ochoco	47.5	1.2	15.6	15.5
Prineville	153.0	70.9	104.7	—
Crane Prairie	55.3	10.2	10.8	32.9
Crescent Lake	86.9	15.1	32.5	33.8
Wickiup	200.0	10.6	12.8	38.1
Cottage Grove	30.0	7.4	4.1	7.5
Cougar	155.2	91.8	81.7	—
Detroit	299.9	211.8	172.7	194.0
Dorena	70.5	14.1	9.4	14.3
Fall Creek	115.0	12.0	10.4	—
Fern Ridge	94.2	80.2	74.4	45.9
Foster	30.0	24.5	10.3	—
Green Peter	270.0	122.9	0.0	—
Hills Creek	200.0	93.2	114.0	—
Lookout Point	337.2	223.8	188.9	174.6
Timothy Lake	61.7	62.5	64.3	55.6
<u>WEST COAST DRAINAGE</u>				
Fourmile Lake	16.1	1.2	2.7	6.4
Fish Lake	7.8	1.2	1.3	2.1
Howard Prairie	60.0	22.9	48.5	—
Hyatt Prairie	16.1	7.1	8.3	5.5
Emigrant Lake	39.0	7.3	5.1	10.2
Upper Klamath	584.0	212.0	317.3	295.4
Gerber	94.0	16.5	44.9	20.1
Clear Lake	440.2	122.4	187.1	157.3
Cottonwood	8.7	0.7	0.6	0.3
Drew	63.0	11.5	35.2	25.0

# CURRENT OREGON STREAMFLOW

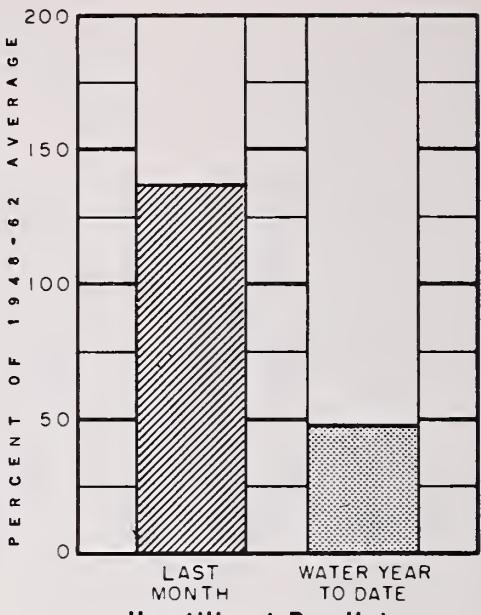
October 1, 1968



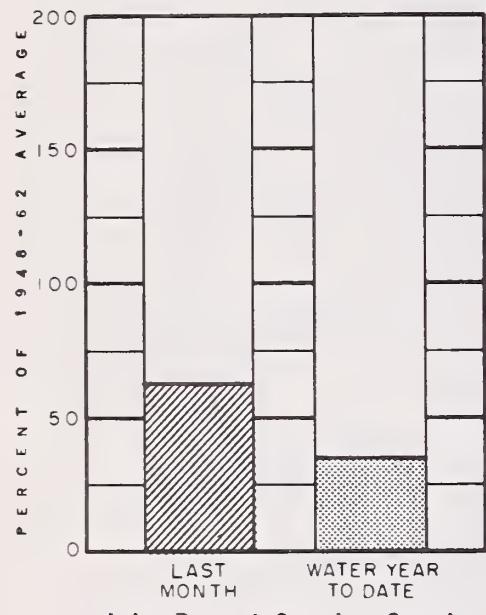
Owyhee Lake net inflow



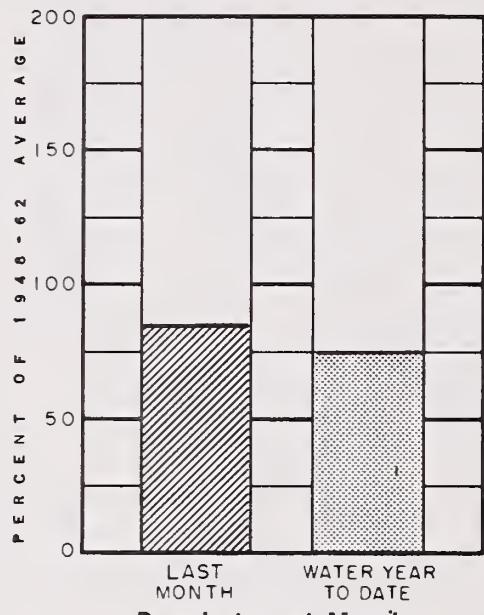
Grande Ronde at La Grande



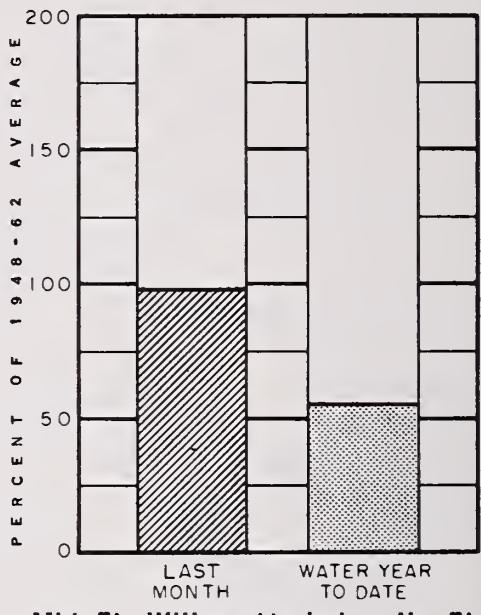
Umatilla at Pendleton



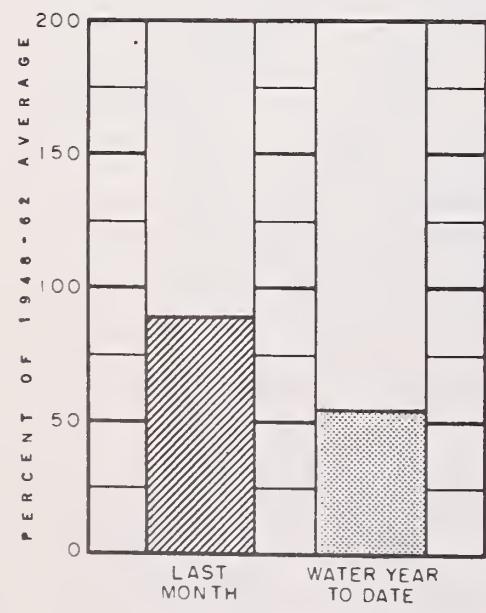
John Day at Service Creek



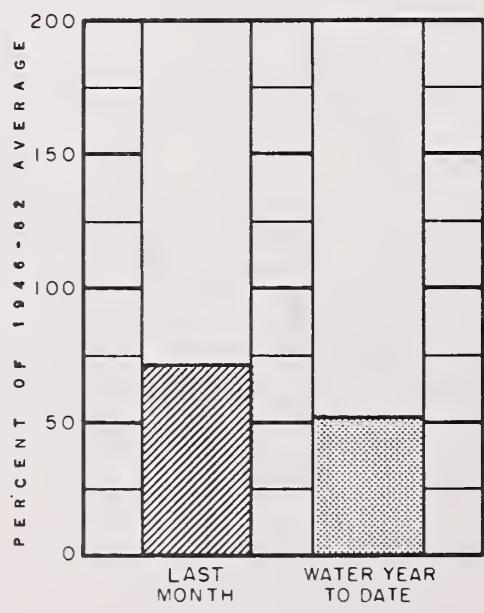
Deschutes at Moody



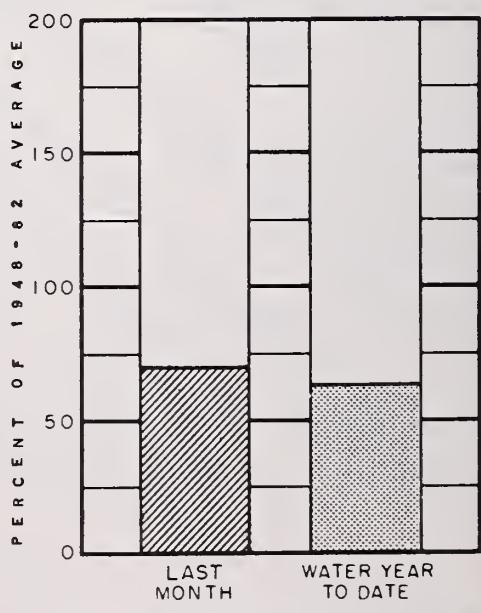
Mid. Fk. Willamette below No. Fk.



Umpqua near Elkton



Rogue at Raygold



Upper Klamath Lake net inflow

## SOIL MOISTURE

STATION		PROFILE (Inches)		SOIL MOISTURE (Inches)			
NAME	ELEVATION	DEPTH	CAPACITY	DATE	THIS YEAR	LAST YEAR	2 YEARS AGO
Bear Creek (Nev.)	7800	72	16.8	9-30-68	11.9	--	7.1
Big Bend (Nev.)	6700	48	16.7	8-29-68	15.8 <sup>f</sup>	15.0	15.0 <sup>f</sup>
Blue Mtn. Springs	5900	42	16.9	9-26-68	5.7	5.4	5.6
Crane Prairie	5375	48	18.2	9-26-68	14.5	14.5	14.3
Folly Farm	4450	30	12.5	No Report			
Jack Cr., Lower (Nev.)	6800	48	8.6	9-20-68	7.8	7.3	--
Jordan Valley	4390	48	19.3	9-25-68	14.9	13.2	13.9
Mud Flat (Ida.)	5500	48	12.8	9-27-68	10.8	8.7	9.0
Rodeo Flat (Nev.)	6800	42	11.0	8-29-68	10.5 <sup>f</sup>	9.9	10.1 <sup>f</sup>
Stinking Water Summit	4800	48	21.9	9-27-68	21.4	--	21.4
Taylor Canyon (Nev.)	6200	48	15.1	8-29-68	12.6 <sup>f</sup>	11.3	10.6 <sup>f</sup>
Triangle (Ida.)	5150	48	16.6	9-27-68	13.4	7.8	--
AREA 1							
Blue Mtn. Summit	5100	36	16.8	9-25-68	7.9	7.7	7.6
Dooley Mountain	5430	36	9.2	9-26-68	2.4	2.4	2.3
Emigrant Springs	3925	48	22.3	9-27-68	16.8	10.8	9.5
Ladd Summit	3730	48	18.9	9-27-68	8.7	8.6	8.7
Moss Springs	5850	42	25.8	9-27-68	14.6	10.6	11.2
Tollgate	5070	48	23.6	9-25-68	15.3	10.3	12.6
AREA 2							
Athena-Weston	1700	48	18.7	9-25-68	9.1	11.1	9.7
Battle Mtn. Summit	4340	48	13.8	9-25-68	9.8	9.5	10.5
Emigrant Springs	3925	48	22.3	9-27-68	16.8	10.8	9.5
Tollgate	5070	48	23.6	9-25-68	15.3	10.3	12.6
AREA 3							
Battle Mtn. Summit	4340	48	13.8	9-25-68	9.8	9.5	10.5
Beech Creek	4800	48	21.3	9-26-68	7.3	7.6	7.6
Blue Mountain Springs	5900	42	16.9	9-26-68	5.7	5.4	5.6
Blue Mountain Summit	5100	36	16.8	9-25-68	7.9	7.7	7.6
Derr	5670	24	9.0	9-25-68	4.7	3.7	--
Marks Creek	4540	36	14.1	9-30-68	8.9	8.7	10.4
Snow Mountain	6300	48	16.7	9-27-68	9.9	9.9	9.9
Starr Ridge	5150	36	10.6	9-26-68	7.2	7.0	7.0
Williams Ranch	4500	42	17.9	9-26-68	15.1	13.7	13.9
AREA 4							
Derr	5670	24	9.0	9-25-68	4.7	3.7	--
Marks Creek	4540	36	14.1	9-30-68	8.9	8.7	10.4
Snow Mountain	6300	48	16.7	9-27-68	9.9	9.9	9.9
AREA 5							
Cooper Spur	3490	72	26.4	9-30-68	13.7	--	--
AREA 6							
Bly Mountain	5090	42	14.0	9-20-68	8.2	7.9	6.8
AREA 10							
Camas Creek	5720	42	14.5	9-26-68	9.3	9.7	7.2
Quartz Mountain	5320	48	15.3	9-23-68	4.8	4.7	4.4
AREA 11							
Blue Mountain Spring	5900	42	16.9	9-26-68	5.7	5.4	5.6
Fish Creek	7900	48	15.0	10-1-68	8.3	7.8	7.8
Folly Farm	4450	30	12.5	No Report			
Silvies	6900	48	16.4	10-1-68	12.1	11.8	11.4
Snow Mountain	6300	48	16.7	9-27-68	9.9	9.9	9.9
Starr Ridge	5150	36	10.6	9-26-68	7.2	7.0	7.0
Stinking Water	4800	48	21.9	9-27-68	21.4	--	21.4
Willow-Bald	5000	24	6.6	9-27-68	3.4	3.4	3.0



# The Following Organizations Cooperate in the Oregon Snow Survey Work

## STATE

Idaho Cooperative Snow Surveys  
Nevada Cooperative Snow Surveys  
Oregon State University  
Oregon State Engineer and Corps of State Watermasters  
Oregon State Highway Engineers  
Soil and Water Conservation Districts of Oregon

## COUNTY

Douglas County Water Resources Survey

## FEDERAL

Department of Agriculture  
Cooperative Extension Service  
Forest Service  
Soil Conservation Service  
Department of Commerce  
Weather Bureau  
Department of the Interior  
Bonneville Power Administration  
Bureau of Land Management  
Bureau of Reclamation  
Fish and Wildlife Service  
Geological Survey  
National Park Service  
Department of National Defense  
Corps of Army Engineers

## PUBLIC UTILITIES

Pacific Power and Light Company  
Portland General Electric Company  
California-Pacific Utilities Company

## MUNICIPALITIES

City of Baker  
City of La Grande  
City of The Dalles  
City of Walla Walla

## IRRIGATION DISTRICTS

Arnold Irrigation District  
Associated Ditch Companies  
Burnt River Irrigation District  
Central Oregon Irrigation District  
East Fork Irrigation District  
Grants Pass Irrigation District  
Hood River Irrigation District  
Jordan Valley Irrigation District  
Juniper Flat Irrigation District  
Lakeview Water Users, Incorporated  
Medford Irrigation District  
Middle Fork Irrigation District  
North Board of Control - Owyhee Project  
North Unit Irrigation District  
Ochoco Irrigation District  
Rogue River Valley Irrigation District  
South Board of Control - Owyhee Project  
Squaw Creek Irrigation District  
Talent Irrigation District  
Tumalo Project  
Vale-Oregon Irrigation District  
Warmsprings Irrigation District

## PRIVATE ORGANIZATIONS

Amalgamated Sugar Company  
The Crag Rats, Hood River, Oregon

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